

In the Claims

Please substitute the following amended claims for those currently pending:

20. (Twice Amended) A method for inducing nucleic acid synthesis in a differentiated neuron in vivo comprising:
- obtaining at least one vector comprising nucleic acid encoding a desired protein and an E2F regulator or an E1A regulator, or both an E2F regulator and an E1A regulator;
- wherein the vector is injected into or near the peripheral nervous system and is not injected into the brain or the central nervous system of an animal.
22. (Once Amended) A method as in claim 20, wherein the vector(s) are associated with immunoliposomes.
23. (Once Amended) A method as in claim 20 wherein the vector(s) comprise pRcCMV.
24. (Once Amended) A method as in claim 23, wherein the vector(s) comprise the E2F regulator.
25. (Once Amended) A method as in claim 23, wherein the vector(s) the E2F1 regulator.
26. (Once Amended) A method as in claim 23, wherein the vector(s) comprise the E1A regulator.
27. (Twice Amended) A method for integrating DNA encoding a desired protein in a differentiated neuron in vivo comprising:

obtaining a vector comprising nucleic acid encoding an E2F regulator , an E1A regulator, or both an E2F regulator and an E1A regulator, wherein the vector can be used to express the DNA encoding a desired protein in a neuron;

obtaining DNA encoding a desired protein; and

cotransfecting a differentiated neuron with the vector and the DNA encoding the desired protein such that the DNA encoding the desired protein is integrated in the differentiated neuron and the desired protein is produced;

wherein the vector is injected into or near the peripheral nervous system and is not injected into the brain or the central nervous system of an animal.

Please add new claims 37-56 as follows:

37. A vector comprising nucleic acid encoding at least one regulator selected from the group consisting of E2F and E1A.
38. The vector of claim 37 comprising at least one expression control sequence.
39. The vector of claim 38 wherein the expression control sequence is chosen from the group consisting of promoters and enhancers.
40. A vector comprising nucleic acid encoding at least one regulator selected from the group consisting of E2F, E2F1, E2F2, E2F3, and E1A.
41. The vector of claim 40 comprising pRcCMV.
42. The vector of claim 40 wherein one of the desired proteins is L-DOPA.
43. The vector of claim 40 wherein one of the desired proteins is tyrosine hydroxylase.

44. The vector of claim 40 wherein one of the desired proteins is a neurotrophic factor.
45. The vector of claim 40 wherein the vector comprises a DNA sequence for a marker protein.
46. The vector of claim 45 wherein the marker protein is a fluorescent protein.
47. The vector of claim 45 wherein the marker protein is an enzyme.
48. The vector of claim 47 wherein the enzyme is  $\beta$ -galactosidase.
49. The vector of claim 40 comprising DNA encoding for nerve growth factor (NGF).
50. An improved method of inducing neurons to express DNA encoding a desired protein of the type wherein the DNA encoding the desired protein is introduced into the neuron, the improvement comprising:
- cotransfecting the DNA encoding the desired protein with nucleic acids encoding at least one of the members of the group consisting of E2F and E1A.
51. The method of claim 50 wherein the E2F is chosen from the group consisting of E2F1, E2F2, and E2F3.
52. An improved vector for inducing a differentiated cell to express DNA encoding a desired protein of the type wherein the vector is introduced into the differentiated cell, the improvement in the vector comprising:
- nucleic acids encoding at least one of the members of the group consisting of E2F and E1A.
53. The method of claim 50 wherein the E2F is chosen from the group consisting of E2F1, E2F2, and E2F3.

54. An improved method of inducing neurons to express DNA encoding a desired protein of the type wherein the DNA encoding the desired protein is introduced into the neuron, the improvement comprising:

introducing DNA encoding the desired protein in combination with factors that bind to Rb.

55. The method of claim 54 wherein the factor that binds to Rb is an antibody.

56. The method of claim 54 wherein the factor that binds to Rb is E2F.